MAR 0 4 1989

FLOOD INSURANCE STUDY

CITY OF PLAINVIEW, TEXAS
HALE COUNTY

MARCH 16, 1989

Federal Emergency Management Agency

COMMUNITY NUMBER - 480275

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
	1.1 Purpose of Study	1
	1.2 Authority and Acknowledgments	1
	1.3 Coordination	1
2.0	AREA STUDIED	2
	2.1 Scope of Study	2
	2.2 Community Description	2
	2.3 Principal Flood Problems	4
	2.4 Flood Protection Measures	4
3.0	ENGINEERING METHODS	4
	3.1 Hydrologic Analyses	5
	3.2 Hydraulic Analyses	6
4.0	FLOODPLAIN MANAGEMENT APPLICATIONS	7
	4.1 Floodplain Boundaries	7
	4.2 Floodways	8
5.0	INSURANCE APPLICATIONS	8
6.0	FLOOD INSURANCE RATE MAP	12
7.0	OTHER STUDIES	12
8.0	LOCATION OF DATA	12
9.0	BIBLIOGRAPHY AND REFERENCES	12

TABLE OF CONTENTS - continued

Page

FIGURES

Figure 1 - Vicinity Map 3

Figure 2 - Floodway Schematic 10

TABLES

Table 1 - Summary of Discharges 5 - 6

Table 2 - Summary of Stillwater Elevations 6

Table 3 - Floodway Data 9

EXHIBITS

Exhibit 1 - Flood Profiles
Running Water Draw Panels 01P-03P
Tributary A Panel 04P
Tributary to Running Water Draw Panel 05P

Exhibit 2 - Flood Insurance Rate Map Index and Street Index
Flood Insurance Rate Map

Exhibit 3 - Elevation Reference Marks

FLOOD INSURANCE STUDY
CITY OF PLAINVIEW, HALE COUNTY, TEXAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the City of Plainview, Hale County, Texas, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by the U. S. Army Corps of Engineers (COE), Fort Worth District for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2226, Project Order No. 12, and all Amendments thereto. This work was completed on November 5, 1987.

1.3 Coordination

On September 17, 1985, an initial Consultation and Coordination Officer's (CCO) meeting was held with representatives of FEMA, the city, and the COE (the study contractor) to establish specific flooding sources that would be investigated by detailed methods. Also discussed were local floodplain regulations, available community maps, flood history, and other hydrologic data.

The following agencies, communities, businesses, and persons were contacted for information or coordination of results: the U. S. Geological Survey (USGS); the U. S. Coast and Geodetic Survey (USC&GS); the Texas Department of Highways and Public Transportation; the Texas Department of Water Resources; the Soil and Conservation Service (SCS); Dewberry & Davis; and Greenhorne and O'Mara, Inc.

On April 27, 1988, a final CCO meeting was held with representatives of FEMA, the city, and the study contractor to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the City of Plainview, Hale County, Texas. The area of study is shown on the Vicinity Map (Figure 1).

The following sources were studied by detailed methods: Running Water Draw, from approximately 25.5 miles above the confluence with the White River to U. S. Route 70; Tributary A, from approximately 1,800 feet downstream of the downstream corporate limits to Playa E; Tributary to Running Water Draw, from its confluence with Running Water Draw to Playa C; and Playas B, C, D, and E. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through November 1992.

Five unnamed playas were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the City of Plainview.

The study area is situated in the Geological Survey Hydrologic Unit Numbers 12050005 and 12050006. The study area's watershed is in the Water Resources Council Texas-Gulf Region, Sub-region 05.

2.2 Community Description

The City of Plainview is located approximately 50 miles north of Lubbock and 90 miles south of Amarillo. It is bordered by the City of Seth Ward to the northeast, and the Township of Plainview on all remaining sides. The city was founded in 1887 by Z. T. Maxwell and E. L. Lowe, who had homesteaded the two quarter sections, on which the town is located. The site, at the point where the Ranald S. Mackenzie trail struck Running Water Draw, was named Plainview because of its location of high ground, which afforded a magnificent

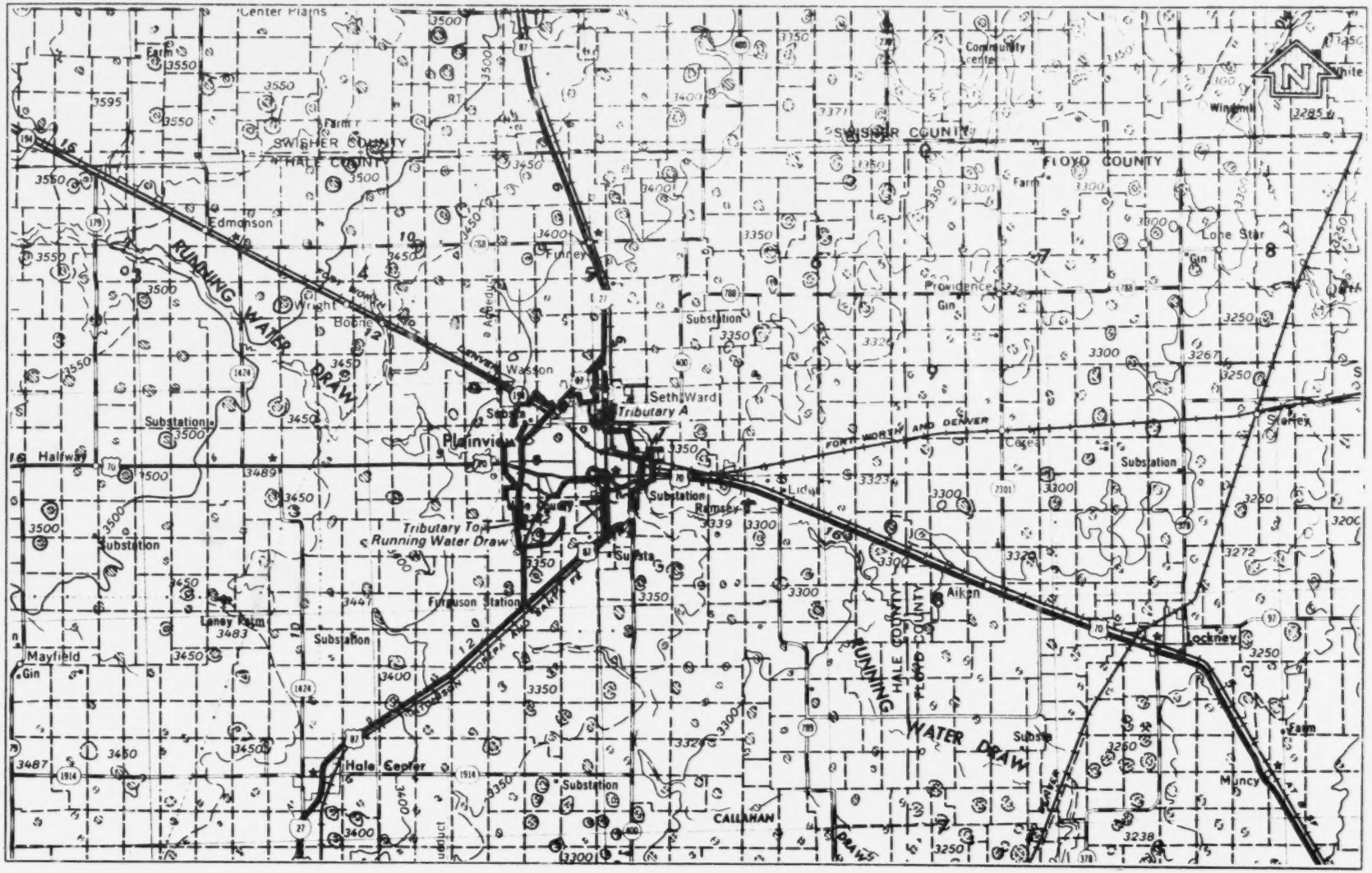


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF PLAINVIEW, TX

(HALE CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

VICINITY MAP

view of the plains. When Hale County was organized in 1888, Plainview became the county seat. By 1890, Plainview had a population of 250; it increased to 8,263 in 1940; 14,023 in 1950; 18,735 in 1960; 19,096 in 1970; and 22,187 in 1980 (References 1, 2 and 3).

Plainview is a commercial center for an extensively irrigated farming area. Industries manufacture agricultural machinery, irrigation pumps, pipe and sprinkler systems, and fertilizer, as well as process castor oil, cottonseed oil, foods, and dairy products (Reference 2).

The climate is generally classified as semi-arid or steppe. The average temperature ranges from a January minimum of 28 degrees Fahrenheit (^{o}F) to a July maximum of 93^{o}F. The average annual rainfall is 19.34 inches.

2.3 Principal Flood Problems

Major flooding experienced in Plainview has been in 1890 with no record of peak flow, June 1941 (12,000 cubic feet/second), June 1960 (9,130 cfs), June 1965 (3,300 cfs), June 1974 (1,890 cfs), and May 1951 (1,800 cfs). Running Water Draw's 100-year flow was presented as 7,400 cfs in 1968 (Reference 4).

2.4 Flood Protection Problems

There are seven SCS detention structures on Running Water Draw above Plainview that control all but 32.6 square miles. All of the results for Running Water Draw submitted in this study were obtained from an interim report prepared by the COE (Reference 4). In September 1973, Plainview entered into the Emergency Program of the National Flood Insurance Program. Floodplain management is also regulated through local ordinances.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. A flood event of a magnitude which is expected to be equaled or exceeded once on the average during any 100-year period (recurrence interval) has been selected as having special significance for floodplain management and for flood insurance rates. This event, commonly termed the 100-year flood, has a 1 percent chance of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent

chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the community.

National Weather Service (NWS) Technical Paper No. 40, and National Oceanic Atmospheric Administration (NOAA) Technical Memorandum NWS Hydro-35 were used in developing the 100-year frequency storm (References 5 and 6). Flow-frequencies and elevations for the Playas studied in detail were developed using the computer program NUDALLAS (Reference 7). The watershed was divided into sub-basins, and synthetic unit and flood hydrographs were developed at selected locations. Peak discharge-frequency values were computed for selected locations. Routing of the flood hydrographs through each sub-basin reach was accomplished using a modified PULS reservoir routing. The HEC-2 backwater model provided the elevation-discharge storage relationships for each reach of all streams studied by detailed methods (Reference 8).

A summary of the drainage area-peak discharge relationships for the flooding sources studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGE (cfs) 100-YEAR
RUNNING WATER DRAW		
Downstream of Atchison Topeka and Santa Fe Railway	471.5	8,200
At Plainview gage	432.2	7,400
Approximately 2,500 feet upstream of Interstate Route 27	422.0	6,400
PLAYA B		
Inflow	4.71	3,490
Outflow	4.71	2,846
PLAYA C		
Outflow	0.14	35

TABLE 1 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGE (cfs) 100-YEAR
PLAYA D		
Inflow	23.53	5,850
Outflow	23.53	4,090
PLAYA E		
Inflow	22.58	6,170
Outflow	22.58	5,830

The stillwater elevations for the 100-year flood have been determined for Playa F1 and Playa F2 and are summarized in Table 2, "Summary of Stillwater Elevations."

TABLE 2 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet) 100-YEAR
PLAYA F1	
Inflow	3,381.2
PLAYA F2	
Inflow	3,386.1

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross sections for the backwater analyses were field surveyed and located at close intervals above and below bridges and culverts in order to compute the significant backwater effects of these structures.

Bridge data was obtained by field measurements and by bridge plans from the Texas Department of Highways and Public Transportation.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1) and the Flood Insurance Rate Map (Exhibit 2) where applicable.

Water-surface elevations of floods of the selected recurrence intervals were computed using the COE HEC-2 step-backwater computer program (Reference 8). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field observations of the flooding sources and floodplain areas. The channel "n" and overbank "n" values for all flooding sources studied in detail are shown in the following tabulation:

Stream	Channel "n"	Overbank "n"
Running Water Draw	0.030 - 0.055	0.045 - 0.065
Playas A, B, and C	0.045 - 0.055	0.045 - 0.055
Playas D, E, F1, and F2	0.055	0.055

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100-year floodplain boundaries to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. For the flooding sources studied in detail, the 100-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 with a contour interval of 10 feet (Reference 9).

For all flooding sources studied by approximate methods, the 100-year flood boundaries were approximated by field inspection and engineering judgment, and delineated using the Flood Hazard Boundary Map for the City of Plainview (Reference 10).

The 100-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The floodway presented in this study was computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 3). The computed floodway is shown on the Flood Insurance Rate Map (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Running Water Draw								
A	145,760	420	2,741	3.0	3,349.1	3,349.1	3,349.7	0.6
B	146,950	849	4,280	1.7	3,349.4	3,349.4	3,350.4	1.0
C	147,700	1,000	4,138	1.8	3,349.7	3,349.7	3,350.7	1.0
D	148,550	1,070	4,191	1.8	3,350.4	3,350.4	3,351.4	1.0
E	149,875	1,396	4,228	1.8	3,352.4	3,352.4	3,353.2	0.8
F	152,760	680	2,511	2.9	3,355.4	3,355.4	3,356.4	1.0
G	154,410	540	2,086	3.5	3,358.2	3,358.2	3,359.0	0.8
H	157,620	1,130	4,936	1.5	3,361.4	3,361.4	3,362.3	0.9
I	162,800	380	1,819	4.1	3,367.5	3,367.5	3,368.4	0.9
J	165,310	370	2,750	2.3	3,370.2	3,370.2	3,371.1	0.9
K	166,400	352	2,279	2.8	3,370.5	3,370.5	3,371.5	1.0
L	168,770	570	3,053	2.1	3,374.3	3,374.3	3,375.3	1.0
M	171,110	550	2,424	2.6	3,377.9	3,377.9	3,378.7	0.8

[1]Feet above confluence with the White River

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF PLAINVIEW, TX

(HALE CO.)

FLOODWAY DATA

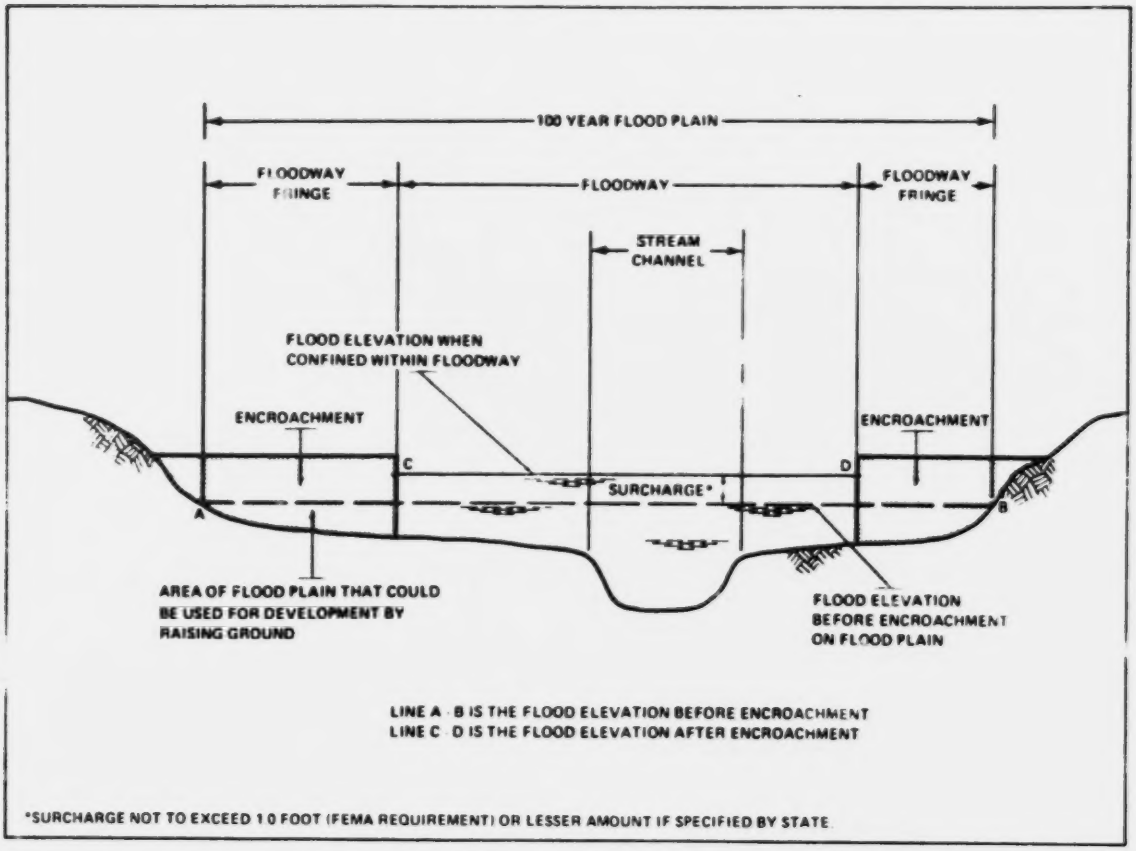
RUNNING WATER DRAW

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A - B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C - D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 2

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplain. The locations of selected cross sections used in the hydraulic analyses are shown where applicable.

7.0 OTHER STUDIES

Parkhill, Smith, and Cooper, Inc., have published two Flood Drainage reports for the City of Plainview (References 11 and 12).

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the City of Plainview (Reference 10).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Federal Regional Center, 800 North Loop 288, Denton, Texas 76201-3698.

9.0 BIBLIOGRAPHY AND REFERENCES

1. The Handbook of Texas, Volume 2, published by the Texas State Historical Association, 1952.

2. The Handbook of Texas, Volume 3, published by the Texas State Historical Association, 1952.

3. The 1986-1987 Texas Almanac (Sesquicentennial edition), published by the Dallas Morning News.

4. U. S. Army Corps of Engineers, Fort Worth District, Running Water Draw Flood Protection - Plainview, Texas, 1968.

5. U. S. Department of Commerce, Weather Bureau, Technical Paper No. 40, Rainfall Frequency Atlas of the United States, Washington, D. C., 1961, Revised 1963.

6. National Oceanic and Atmospheric Administration, National Weather Service, Technical Memorandum NWS Hydro-35, Five to 60 Minute Precipitation Frequency for the Eastern and Central United States, June 1977.

7. U. S. Army Corps of Engineers, Fort Worth District, Computer Program NUDALLAS, Revised September 1982.

8. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, April 1984.

9. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 10 Feet: Plainview, Texas, 1965; Wasson, Texas, 1965.

10. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Plainview, Hale County, Texas, November 19, 1976.

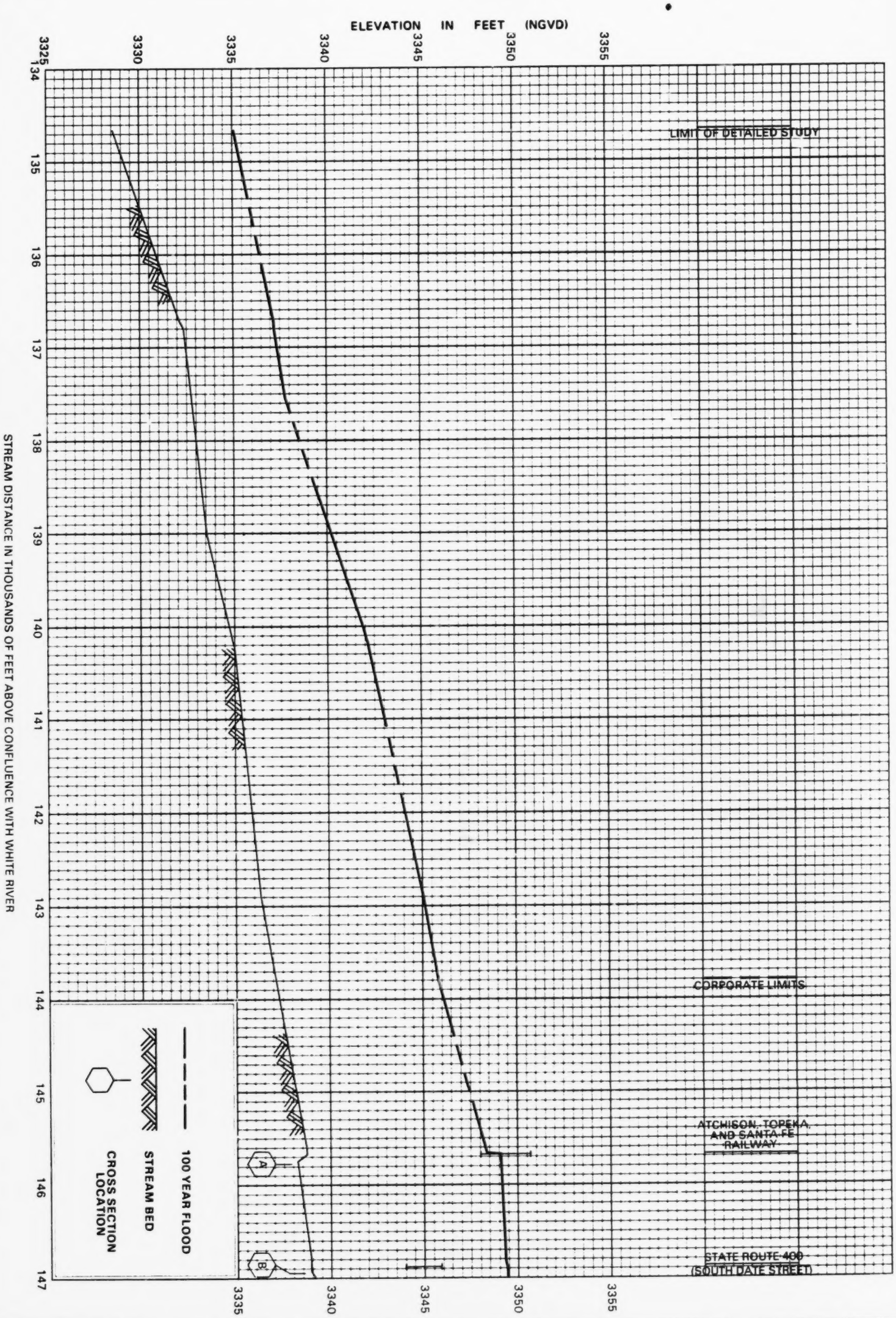
11. Parkhill, Smith, and Cooper, Inc., Consulting Engineers, Storm Drainage Study, 1974.

12. Parkhill, Smith, and Cooper, Inc., Consulting Engineers, Community Development Drainage Study, 1974.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 1	08	3,350.73	Iron pin approximately 46 feet west of centerline of the Atchison, Topeka and Sante Fe Railway at right-of-way fence at fence intersection.
RM 2	08	3,345.60	Chiseled square on top of northwest embankment of State Route 400 (Date Street) bridge.
RM 3	08	3,350.31	Iron Pin approximately 60 feet west of centerline of U. S. Business Route 87 (Columbia Street) and west end of C & C Construction Company sign board.
RM 4	04	3,373.98	Chiseled square on southwest curb at U. S. Route 70 (West 5th Street) and Quincy Street.
RM 5	04	3,377.74	Chiseled square on northeast curb at Irene and Thomas Boulevard.
RM 6	04	3,387.71	Top of fire hydrant on northeast corner of West 4th Street and Ennis Street.
RM 7	07	3,383.93	12p nail in north side of power pole, approximately 2.3 feet above ground level, at northwest corner of Ennis Street and Southwest 3rd Street.
RM 8	02	3,333.084	USGS brass cap located approximately 1.7 miles north along the Atchison, Topeka & Santa Fe Railway from station at road crossing, approximately 30 feet south of centerline of road, approximately 45 feet east of centerline of track, and 2 feet northeast of fence corner.
RM 9	03	3,381.33	Railroad spike in power pole, with guy, in west right-of-way of a paved county road north of U. S. Route 70. One mile west of Ennis Street.
RM 10	01	3,386.37	Painted spot on top of curb, adjacent to power pole, in middle of curve at intersection of Industrial Boulevard and southeast Interstate Route 27 access road.

135365



FEDERAL EMERGENCY MANAGEMENT AGENCY

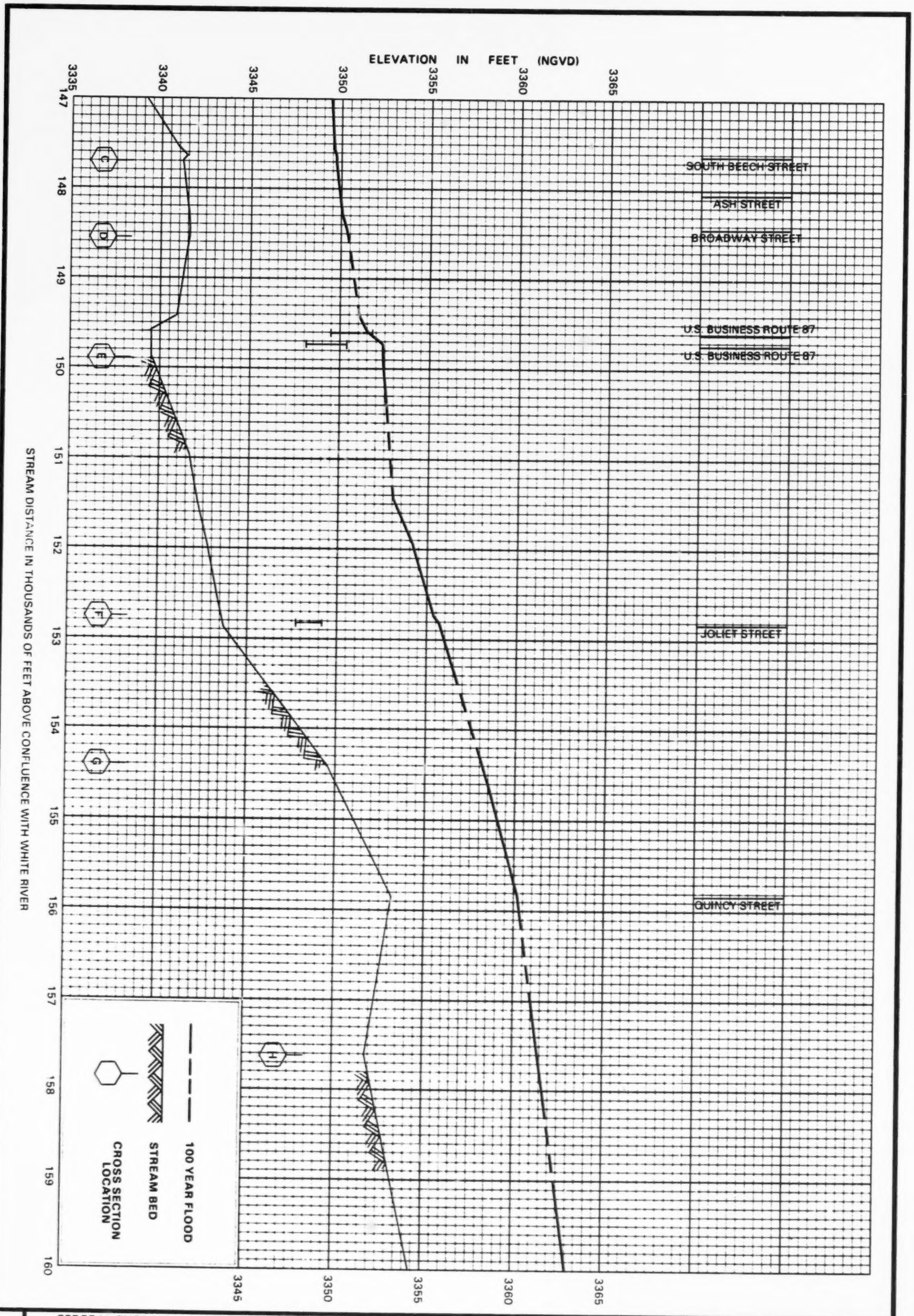
CITY OF PLAINVIEW, TX
(HALE CO.)

FLOOD PROFILES

RUNNING WATER DRAW

01P

135365



FEDERAL EMERGENCY MANAGEMENT AGENCY

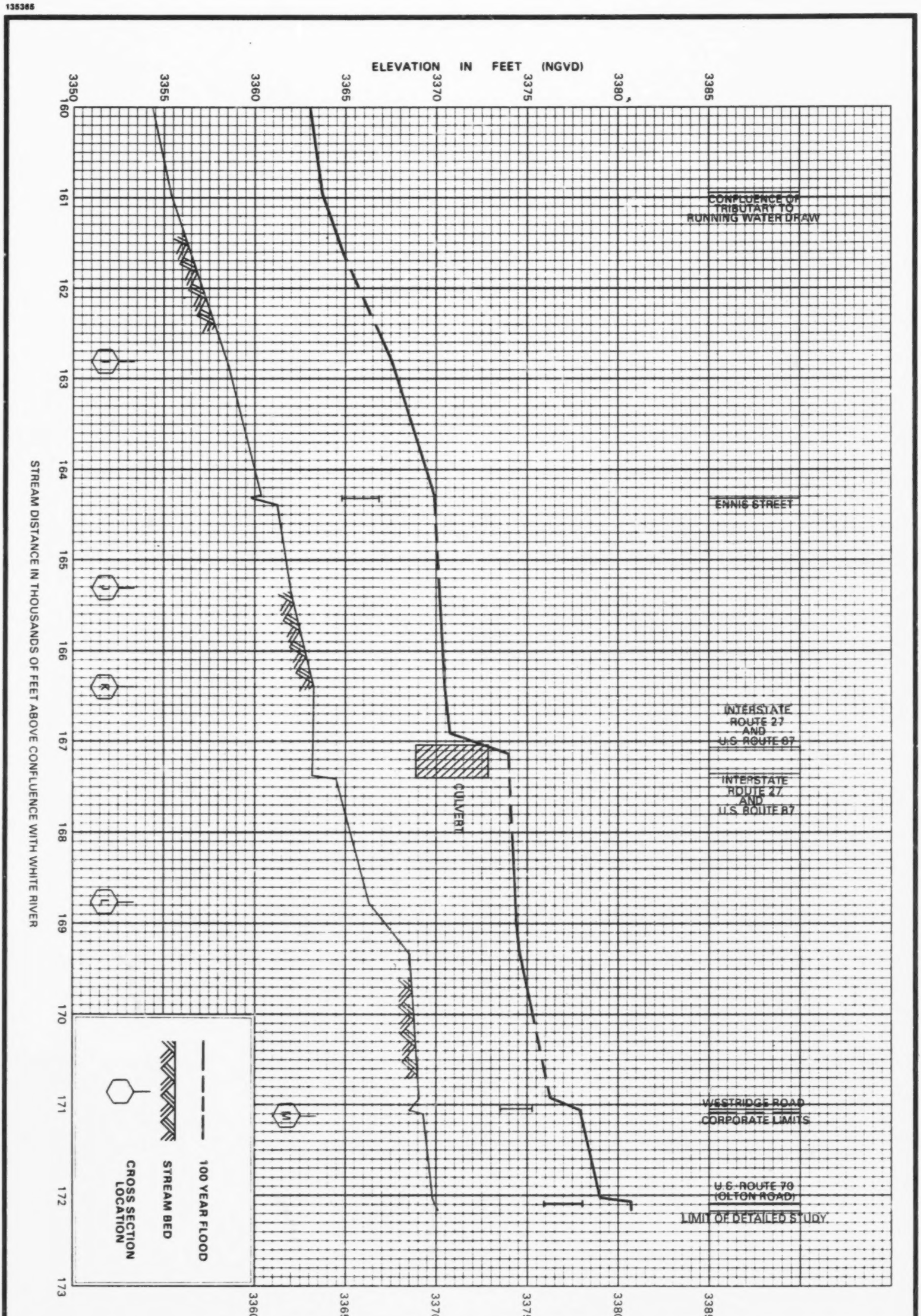
02P

CITY OF PLAINVIEW, TX
(HALE CO.)

FLOOD PROFILES

RUNNING WATER DRAW

135365



03P

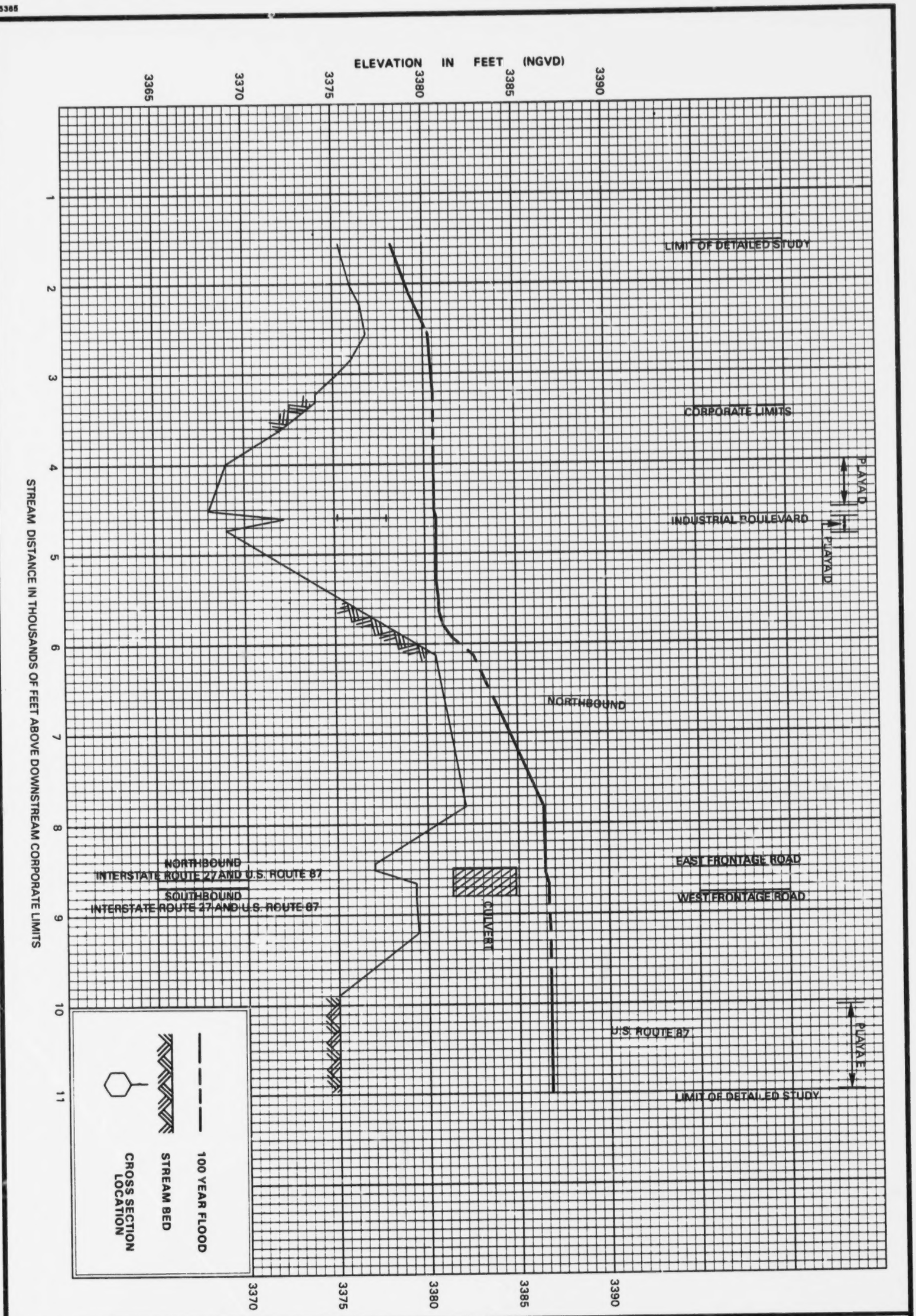
FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF PLAINVIEW, TX
(HALE CO.)

FLOOD PROFILES

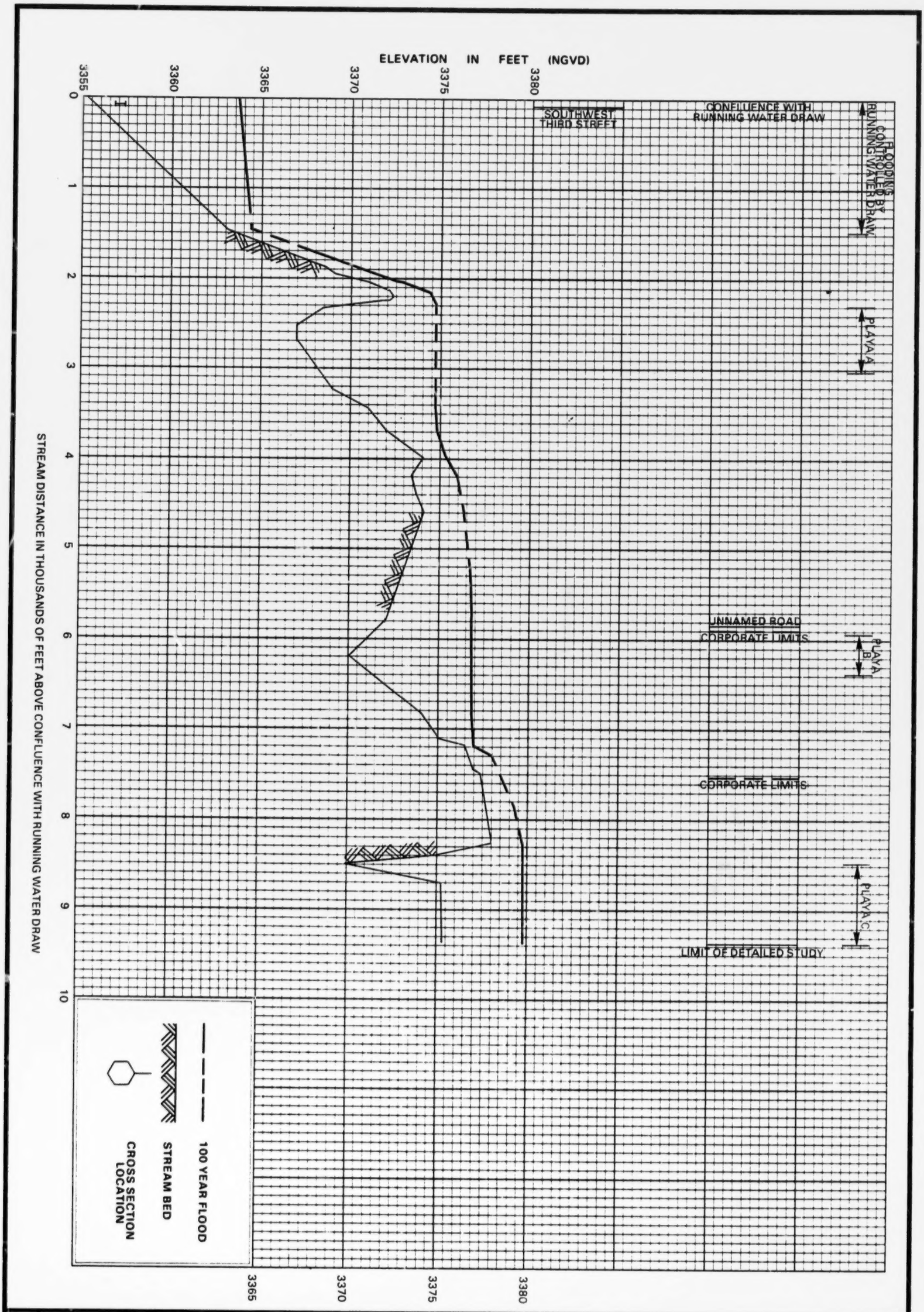
RUNNING WATER DRAW

135385



04P	FEDERAL EMERGENCY MANAGEMENT AGENCY CITY OF PLAINVIEW, TX (HALE CO.)	FLOOD PROFILES TRIBUTARY A

135365



05P

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF PLAINVIEW, TX
(HALE CO.)

FLOOD PROFILES

TRIBUTARY TO RUNNING WATER DRAW